AFW-3000

Intel® Xeon™ E7501
Server Motherboard

USER'S MANUAL

Version 1.0

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Introduction

Product Description

The AFW-3000 Intel® Xeon? Server Motherboard is based on the Intel® ET7501 chipset. With two 184-pin DDR memory sockets, up to 4GB of memory is supported. A dual-channel DDR-200/266 memory interface provides a maximum memory bandwidth of 3.2 GB/s through a 144-bit wide, 200/266 MHz Double Data Rate SDRAM memory interface with densities up to 512 megabits is supported.

The Intel® Xeon™ Processor provides exceptional performance for applications running on advanced operating systems and delivers unparalleled computing power for powerful workstations, internet infrastructure, and departmental server applications. The Intel® NetBurst™ micro-architecture and Hyper- Threading Technology deliver outstanding performance and headroom for peak internet server workloads, resulting in faster response times, support for more users, and improved scalability.

The on board Intel® E7501 Chipset Memory Controller Hub (MCH) is the central hub for all data passing through core system elements such as the dual Intel Xeon™ processors with 512 KB L2 cache via the system bus interface, the memory via memory interface, and both the 64-bit PCI/PCI-X and I/O controller hubs via Intel® Hub Interfaces.

AFW-3000 Features:

- Supports Intel® Pentium® 4 Xeon™ Processor
- Intel® E7501 Chipset with P64H2 Hub Link to PCI-X
- 533MHz Front Side Bus
- Two 184-pin DDR sockets, 4 GB Max Size
- Two Intel® 82546EB Dual 1-Gigabit port PCI-X 64Bit Single Controllers
- Supports four (4) RJ45 connectors or four (4) fiber channels
- USB 1.1, ATX P/S, PCI-X slot, MicroPCI connector, CF card connector

This Server Motherboard represents the perfect choice for those who want superior performance for rugged and demanding applications in industrial automation, telecommunications and data-intensive applications.

Checklist

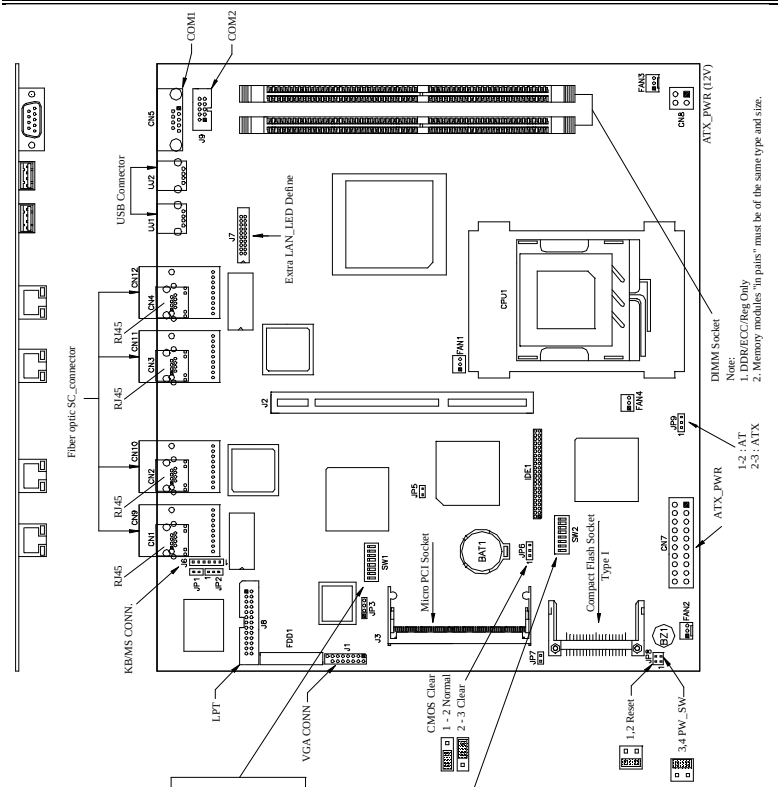
Your AFW-3000 package should include the items listed below.

- The AFW-3000 Industrial Server Motherboard
- This User's Manual
- 1 CD containing the following:
  - Chipset Drivers
  - Flash Memory Utility
- Optional Cable Kit (IB23) that includes VGA cable, PS2 cable, parallel port cable, serial port cable, FDD cable, IDE cable
- Optional IBD21 MicroPCI VGA card

Specifications

Product Name	AFW-3000
Architecture	PCI/PCI-X
CPU Type	Intel® Pentium® 4 Xeon™ Processor
CPU L2 Cache	512KB
CPU Voltage	1.1V~1.85V(VRM 9.1 DC-DC Converter)
Front Side Bus	533MHz FSB (E7501)
System Speed	2.2GHz ~ 3.06GHz or higher
CPU External Clock	133MHz (E7501)
DDR Clock Speed	266Mhz (E7501)
Green /APM	APM1.2
Chipset	Intel® E7501 Chipset: Plumas : Memory Controller Hub P64H2 : Hub Link to PCI-X ICH3 :I/O Controller Hub
BIOS	Award (4M FWH)
System Memory	Two 184-pin DDR sockets Supports DIMMs using 64/128/256/512MB/1GB/2GB DRAM Modules Supports only ECC registered DIMMs (in pairs) 4 GB Max memory size, with DDR 266 support
LPC I/O	Winbond 83627HF LPC I/O
Battery	Lithium Battery
On Board Dual Gigabit LAN	Two Intel® 82546EB Dual 1-Gigabit port PCI-X 64-bit controllers Supports four (4) RJ45 or four (4) for Fiber channel connectors
IDE Connector	Primary IDE channel with 44-pin 2.0mm IDE connector Secondary IDE Channel for Compact Flash Type-1 Socket
USB	Two single ports on board, USB 1.1 compliant
H/W Monitoring	Built in LPC/IO for monitoring voltages, temp., fan rotation
Power Connector	20-pin ATX power connector
PCI–X Slot	184-pin PCI-X (64-bit) slot, 3.3v
MicroPCI	32-bit MicroPCI connector
FDD Connector	1x26 pin header slim-type connector
Keyboard/Mouse	1x6 pin header connector
Parallel Port	2x13 pin header (2.54mm)
PCB Layer	8 layers
Form Factor	Custom Size
Board Size	29.8cm x 26.64cm

Quick Guide



SW1: 1,2,3,4 FOR 82546EB Giga LAN-1 (CN1, CN2)

SW1 Select	1	2	3	4	PCI/PCI-X MODE	Voltage
	OFF	ON	OFF	ON	PCI-33 (32 BIT)	3.3v
	OFF	ON	OFF	OFF	PCI-66 (32 BIT)	3.3v
	OFF	OFF	ON	OFF	PCI-X-66 (64 BIT)	3.3v
	ON	OFF	OFF	OFF	PCI-X-100 (64 BIT)	3.3v
Default	OFF	OFF	OFF	OFF	PCI-X-133 (64 BIT)	3.3v

SW1: 5,6,7,8 FOR J2: PCI/PCI-X SLOT

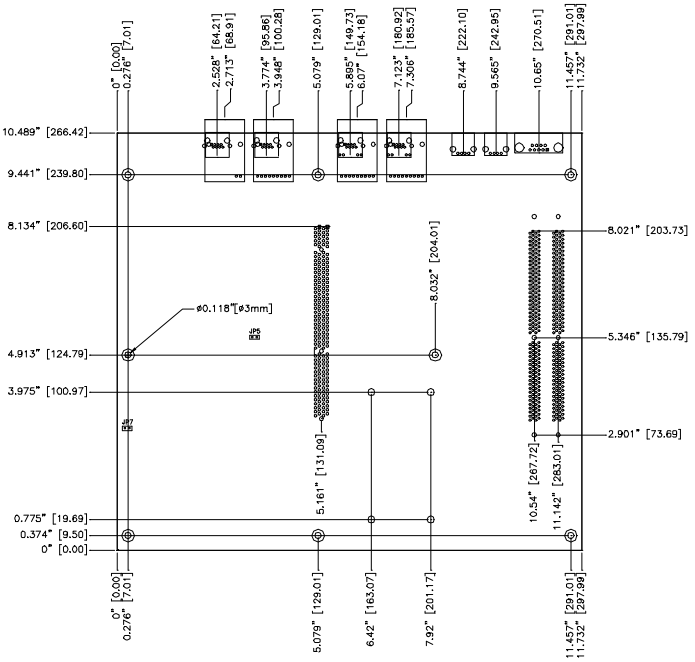
SW1 Select	5	6	7	8	PCI/PCI-X MODE	Voltage
Default	OFF	ON	OFF	ON	PCI-33 (32 BIT)	3.3v
	OFF	ON	OFF	OFF	PCI-66 (32 BIT)	3.3v
	OFF	OFF	ON	OFF	PCI-X-66 (64 BIT)	3.3v
	ON	OFF	OFF	OFF	PCI-X-100 (64 BIT)	3.3v
	OFF	OFF	OFF	OFF	PCI-X-133 (64 BIT)	3.3v

SW2: 1,2,3,4 FOR 82546EB Giga LAN-2 (CN11, CN12)

SW2 Select	1	2	3	4	PCI/PCI-X MODE	Voltage
	OFF	ON	OFF	ON	PCI-33 (32 BIT)	3.3v
	OFF	ON	OFF	OFF	PCI-66 (32 BIT)	3.3v
	OFF	OFF	ON	OFF	PCI-X-66 (64 BIT)	3.3v
	ON	OFF	OFF	OFF	PCI-X-100 (64 BIT)	3.3v
Default	OFF	OFF	OFF	OFF	PCI-X-133 (64 BIT)	3.3v

* SW2: 5,6,7,8 Reserved

Board Dimensions



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Installations

This section provides information on how to use the jumpers and connectors on the AFW-3000 in order to set up a workable system. The topics covered are:

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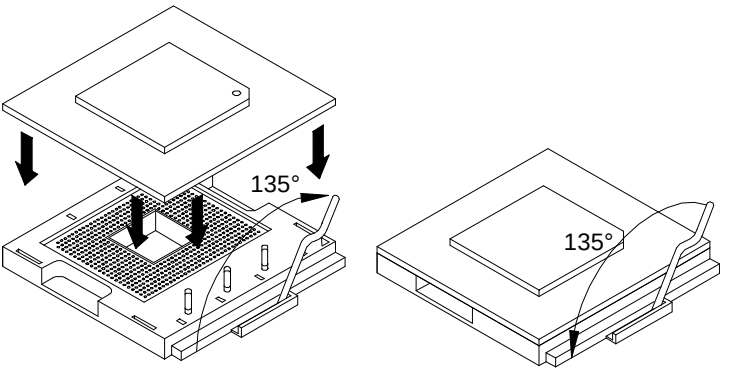
Installing the CPU

The AFW-3000 Server Motherboard supports a CPU socket for Intel® Xeon? processors. This socket comes with a lever to secure the processor. Raise this lever to about a 90° angle to allow the insertion of the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, return the lever to the lock position. Refer to the figures below.



After you have installed the processor into the socket, check if the jumpers for the CPU type and speed are correct.

***NOTE**: Ensure that the CPU heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause your system to hang or be unstable.*

ATX Power Installation

The system power is provided to the AFW-3000 Server Motherboard with the CN7 and CN8 ATX power connectors. CN8 is a 4-pin power connector. CN7 is a 20-pin ATX power connector.

Installing the Memory

The AFW-3000 Server Motherboard supports two DDR memory sockets for a maximum total memory of 4GB in DDR memory type.

Note: DIMM modules must be DDR/ECC/Reg Only.
Modules "in pairs" must be the same type and size.

The memory module capacities supported are 64MB, 128MB, 256MB, 512MB, 1GB and 2GB. The following table lists the supported DDR DIMM configurations.

Supported DDR DIMM Configurations.

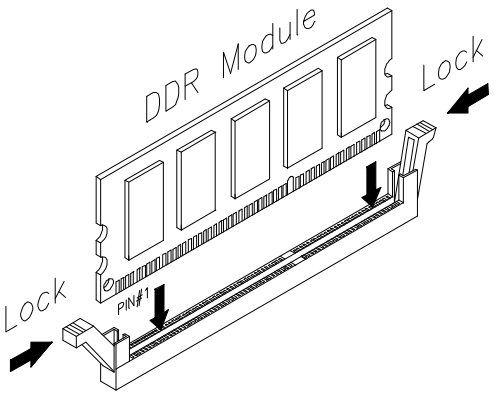
Density	64 Mbit		128Mbit		256Mbit		512Mbit	
Device Width	X4	X8	X4	X8	X4	X8	X4	X8
Single/ Double	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS
184-pin DDR	128/256MB	64/128MB	256/512MB	128/256MB	512MB /1GB	256/512MB	1GB/2GB	512MB /1GB

Installing and Removing Memory Modules

To install the DDR modules, locate the memory slot on the Server Motherboard and perform the following steps:

1. Hold the DDR module so that the keys of the DDR module align with those on the memory slot.
2. Gently push the DDR module in an upright position until the clips of the slot close to hold the DDR module in place when the DDR module touches the bottom of the slot.

3. To remove the DDR module, press the clips with both hands.



Setting the Jumpers

Jumpers are used on AFW-3000 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on AFW-3000 and their respective functions.

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JP8: Power Reset Switch 15
JP9: AT / ATX Power Supply Select 15
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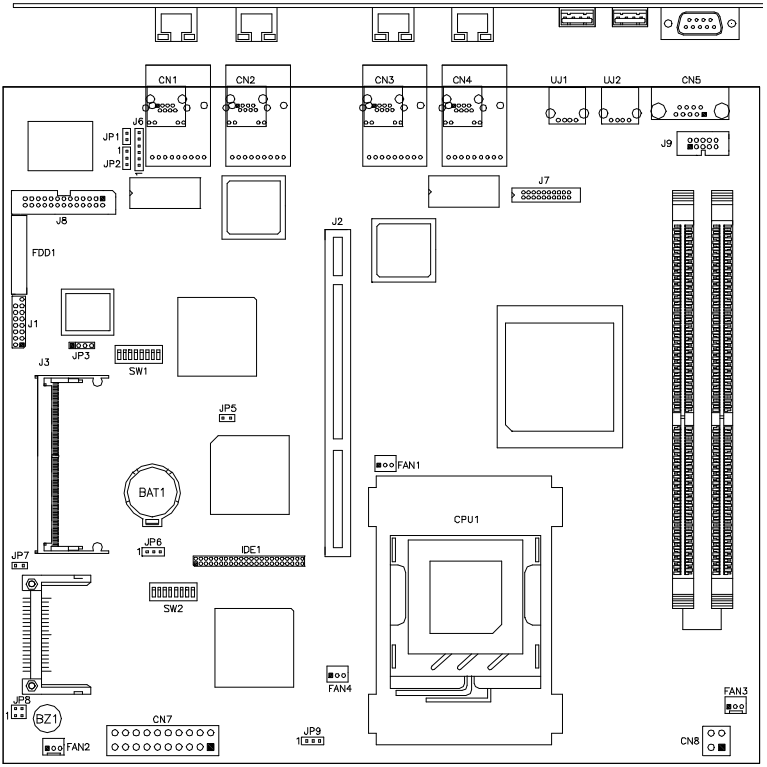
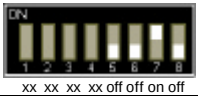
Jumper Locations on AFW-3000



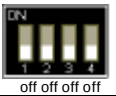
SW1 (1-4): For 82546EB Gigabit LAN-1 (CN1, CN2)

SW1(1-4)	PCI Setting
off on off on xx xx xx xx	PCI-33 (32-bit)
off on off off xx xx xx xx	PCI-66 (32-bit)
off off on off xx xx xx xx	PCI-X-66 (64-bit)
on off off off xx xx xx xx	PCI-X-100 (64-bit)
off off off off xx xx xx xx	PCI-X-133 (64-bit)

SW1 (5-8): For J2: PCI/PCI-X Slot

SW1(5-8)	PCI Setting
xx xx xx xx off on off on	PCI-33 (32-bit)
xx xx xx xx off on off off	PCI-66 (32-bit)
 xx xx xx xx off off on off	PCI-X-66 (64-bit)
xx xx xx xx on off off off	PCI-X-100 (64-bit)
xx xx xx xx off off off off	PCI-X-133 (64-bit)

SW2 (1-4): For 82546EB Gigabit LAN-2 (CN11, CN12)

SW1(1-4)	PCI Setting
off on off on	PCI-33 (32-bit)
off on off off	PCI-66 (32-bit)
off off on off	PCI-X-66 (64-bit)
on off off off	PCI-X-100 (64-bit)
 off off off off	PCI-X-133 (64-bit)

REMARKS: SW2: 5,6,7,8 are reserved.

Configuring the CPU Frequency

The AFW-3000 Server Motherboard does not provide DIP switches to configure the processor speed (CPU frequency). By default, the board automatically detects the CPU FSB clock.

JP6: Clear CMOS Contents

Use JP6, a 3-pin header, to clear the CMOS contents. *Note that the ATX-power connector should be disconnected from the Server Motherboard before clearing CMOS.*

JP6	Setting	Function
1 2 3	Pin 1-2 Short/Closed	Normal
1 2 3	Pin 2-3 Short/Closed	Clear CMOS

JP8: Power Reset Switch

JP8	Setting	Function
	Pin 1-2 Short/Closed	Reset
	Pin 3-4 Short/Closed	PW_SW

JP9: AT / ATX Power Supply Select

Use JP9, a 3-pin header, to switch between support for ATX power supply or AT power supply.

JP9	Setting	Power Supply Type
	Pin 1-2 Short/Closed	AT Power (Emulation)
	Pin 2-3 Short/Closed	ATX Power

JP1, JP2, JP3, JP5: Reserved Jumpers

Connectors on AFW-3000

The connectors on AFW-3000 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on AFW-3000 and their respective functions.

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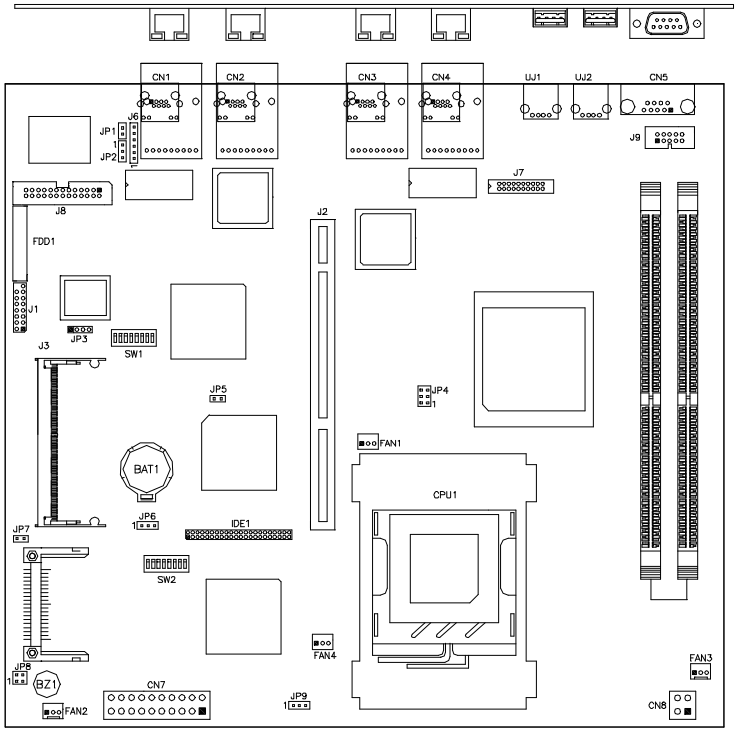
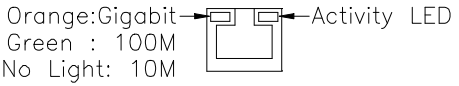
Connector Locations on AFW-3000



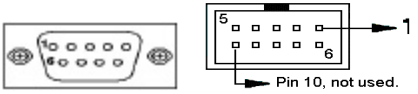
CN1, CN2, CN3, CN4: Gigabit LAN RJ45 Connectors

CN1, CN2, CN3 and CN4 are the Gigabit LAN RJ45 connectors on AFW-3000. These connectors, however, can be optionally positioned with four fiber optic SC connectors.



CN5, J9: Serial Ports

CN5 (COM1) is a DB-9 connector, while J9 is a 10-pin header for COM2. Refer to the table below for their pin assignments.



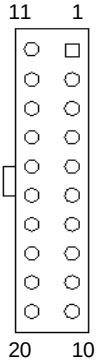
COM1 COM2

Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

CN6: CF Card Connector (Type 1)

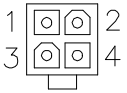
CN7: ATX Power Supply Connector

CN7 is a 20-pin ATX power supply connector. Refer to the following table for the pin out assignments.



Signal Name	Pin #	Pin #	Signal Name
3.3V	11	1	3.3V
-12V	12	2	3.3V
Ground	13	3	Ground
PS-ON	14	4	+5V
Ground	15	5	Ground
Ground	16	6	+5V
Ground	17	7	Ground
-5V	18	8	Power good
+5V	19	9	5VSB
+5V	20	10	+12V

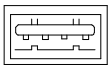
CN8: ATX 12V/+12V Power Connector



Pin #	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

UJ1, UJ2: USB Ports

UJ1 and UJ2 and single USB ports situated side by side beside the DB-9 COM1 serial port.

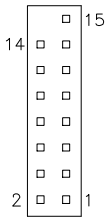


UJ1 / UJ2

Pin	Signal Name
1	Ground
2	USB+
3	USB-
4	Vcc

J1: VGA CRT Connector

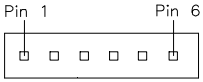
J1 is a 15-pin header for an external VGA CRT female connector.



Signal Name	Pin	Pin	Signal Name
Red	1	2	Vcc
Green	3	4	Ground
Blue	5	6	N.C.
N.C.	7	8	N.C.
Ground	9	10	H-Sync
Ground	11	12	V-Sync
Ground	13	14	N.C.
Ground	15	16	N.C.

J6: External Keyboard Connector

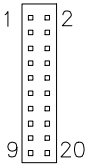
J6 is a 5-pin header for the external keyboard connector.



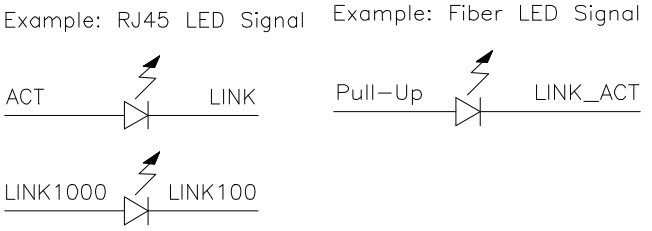
Pin #	Signal Name
1	KBCLK
2	KBDAT
3	MSDAT
4	MSCLK
5	+5V
6	Ground

J7: Extra LAN_LED Define

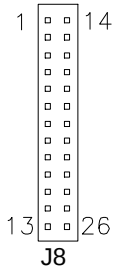
This 20-pin header can be used to support either one RJ45 connector or one fiber optic channel connector. Below are the pin assignments of these two selections.



Pin	RJ45 LED Signal	Pin	Fiber LED Signal
1	VCC	1	VCC5
2	VCC3	2	VCC3
3	PORT1 ACT	3	P1 LINK ACT
4	PORT3 ACT	4	P3 LINK ACT
5	PORT1 LINK	5	PULL UP 1
6	PORT3 LINK	6	PULL UP 3
7	PORT1 LINK100	7	Reserved
8	PORT3 LINK100	8	Reserved
9	PORT1 LINK1000	9	Reserved
10	PORT3 LINK1000	10	PULL UP 3
11	PORT2 ACT	11	P2 LINK ACT
12	PORT4 ACT	12	P4 LINK ACT
13	PORT2 LINK	13	PULL UP 2
14	PORT4 LINK	14	PULL UP 4
15	PORT2 LINK100	15	Reserved
16	PORT4 LINK100	16	Reserved
17	PORT2 LINK1000	17	Reserved
18	PORT4 LINK1000	18	Reserved
19	GND	19	GND
20	GND	20	GND

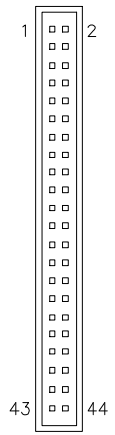


J8: Parallel Port Connector



Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

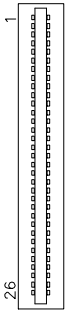
IDE1: EIDE Connector



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground
Vcc	41	42	Vcc
Ground	43	44	N.C.

FDD1: Floppy Drive Connector

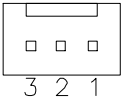
FDD1is a slim 26-pin connector and will support up to 2.88MB FDD.



Signal Name	Pin #	Pin #	Signal Name
VCC	1	2	INDEX
VCC	3	4	DRV_SEL
VCC	5	6	DSK_CH
NC	7	8	NC
NC	9	10	MOTOR
DINST	11	12	DIR
NC	13	14	STEP
GND	15	16	WDATA
GND	17	18	WGATE
GND	19	20	TRACK
NC	21	22	WPROT
GND	23	24	RDATA
GND	25	26	SIDE

FAN1, FAN2, FAN3, FAN4: CPU Fan Power Connectors

There are four fan power connectors that support 12V fans.



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the Server Motherboard. The topics covered in this chapter are as follows:

BIOS Introduction 25
BIOS Setup.....25
Standard CMOS Setup.....27
Advanced BIOS Features 30
Advanced Chipset Features.....33
Integrated Peripherals.....34
Power Management Setup.....36
PNP/PCI Configurations.....39
PC Health Status.....40
Frequency/Voltage Control 41
Load Fail-Safe Defaults.....42
Load Setup Defaults.....42
Set Supervisor/User Password.....42
Save & Exit Setup.....42
Exit Without Saving 42

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel® processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press  <DEL>  to  Enter  Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Phoenix - Award WorkstationBIOS CMOS Setup Utility

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type…	

The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section that displays information on the currently highlighted item in the list.

Note: *If the system cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.*

Warning: *It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.*

Standard CMOS Setup

"Standard CMOS Setup" choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the Server Motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Standard CMOS Features

		Item Help
Date (mm:dd:yy)	Tue, Jan 1 2002	
Time (hh:mm:ss)	00 : 00 : 00	Menu Level
IDE Primary Master	None	Change the day, month,
IDE Primary Slave	None	Year and century
IDE Secondary Master	None	
IDE Secondary Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	129024K	
Total Memory	130048K	

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is:

Day : **Sun to Sat**
Month : **1 to 12**
Date : **1 to 31**
Year : **1994 to 2079**

To set the date, highlight the "Date" field and use the PageUp/ PageDown or +/- keys to set the current time.

Time

The time format is: **Hour : 00 to 23**
Minute : 00 to 59
Second : 00 to 59

To set the time, highlight the "Time" field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

IDE Primary HDDs / IDE Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" and the second is the "Slave".

Press <Enter> to configure the hard disk. The selections include Auto, Manual, and None. Select 'Manual' to define the drive information manually. You will be asked to enter the following items.

CYLS :	Number of cylinders
HEAD :	Number of read/write heads
PRECOMP :	Write precompensation
LANDZ :	Landing zone
SECTOR :	Number of sectors

The Access Mode selections are as follows:

Auto	
Normal	(HD < 528MB)
Large	(for MS-DOS only)
LBA	(HD > 528MB and supports Logical Block Addressing)

Drive A / Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360KB	1.2MB	720KB	1.44MB	2.88MB
5.25 in.	5.25 in.	3.5 in.	3.5 in.	3.5 in.

Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA	For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
CGA 40	Power up in 40 column mode.
CGA 80	Power up in 80 column mode.
MONO	For Hercules or MDA adapters.

Halt On

This field determines whether or not the system will halt if an error is detected during power up.

No errors	The system boot will not be halted for any error that may be detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a keyboard or disk error; it will stop for all others.

Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning	Disabled	ITEM HELP
CPU L1 & L2 Cache	Enabled	Menu Level
CPU L3 Cache	Enabled	Allows you choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
Hyper-Threading Technology	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up Numlock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
MPS Version Control For OS	1.4	
OS Select For DRAM>64MB	Non-OS2	
Report No FDD For WIN 95	Yes	
Small Logo (EPA) Show	Enabled	

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

CPU Internal Cache / External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are ***Enabled***.

Hyper-Threading Technology

This field enables or disables the Hyper-Threading feature that is available with CPUs of 3.06GHz speeds (Pentium® 4) and above.

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

First/Second/Third Boot Device

These fields determine the drive that the system searches first for an operating system. The options available include *Floppy*, *LS/ZIP*, *HDD-0*, *SCSI*, *CDROM*, *HDD-1*, *HDD-2*, *HDD-3*, *LAN* and *Disable*.

Boot Other Device

These fields allow the system to search for an operating system from other devices other than the ones selected in the First/Second/Third Boot Device.

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

Boot Up Floppy Seek

When enabled, the BIOS will seek whether or not the floppy drive installed has 40 or 80 tracks. 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system.

Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to ***Disabled.***

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to ***250msec.***

Security Option

This field allows you to limit access to the System and Setup. The default value is ***Setup***. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

MPS Version Control for OS

This option specifies the version of the Multiprocessor Specification (MPS) that the board will use. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. It is also required for a secondary PCI bus to work without the need for a bridge. Newer versions of server operating systems will generally support MPS 1.4.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is ***Non-OS/2***.

Video BIOS Shadow

This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

Shadowing a ROM reduces the memory available between 640KB to 1024KB. These fields determine whether or not optional ROM will be copied to RAM.

Small Logo (EPA) Show

This field enables the showing of the EPA logo located at the upper right of the screen during boot up.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Control	[Press Enter]	ITEM HELP
DRAM Data Integrity Mode	ECC	Menu Level
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Delayed Transaction	Enabled	
Delay Prior to Thermal	16 Min	

DRAM Timing Control

This field presents several options to configure the DRAM timing.

DRAM Data Integrity Mode

This BIOS feature controls the ECC feature of the memory controller. ECC, which stands for Error Checking and Correction, enables the memory controller to detect and correct single-bit soft memory errors. The memory controller will also be able to detect double-bit errors although it will not be able to correct them. This provides increased data integrity and system stability. However, this feature can only be enabled if you are using special ECC memory modules.

System BIOS Cacheable

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable

The Setting *Enabled* allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

Delayed Transaction

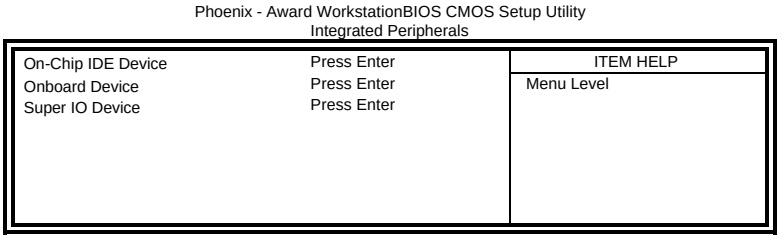
The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

Delay Prior to Thermal

This field activates the CPU thermal function after the systems boots for the set number of minutes. The options are *16Min* and *64Min*.

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals.



OnChip IDE Device

This field contains options related to the IDE devices on board. The options and the respective default settings are listed below.

IDE HDD Block Mode : Enabled
On-chip Primary PCI IDE : Enabled
IDE Primary Master PIO : Auto
IDE Primary Slave PIO : Auto
IDE Primary Master UDMA : Auto
IDE Primary Slave UDMA : Auto
On-chip Secondary PCI IDE : Enabled
IDE Secondary Master PIO : Auto
IDE Secondary Slave PIO : Auto
IDE Secondary Master UDMA : Auto
IDE Secondary Slave UDMA : Auto

Onboard Device

This field contains options related to onboard devices including USB devices. The options and the respective default settings are listed below.

USB Controller : Enabled
USB Keyboard Support : Enabled

Super IO Device

This field contains options related to IO devices including FDD, serial ports, IR, and parallel port devices. The options and the respective default settings are listed below.

POWER ON Function: BUTTON ONLY
KB Power ON Password: Enter
Onboard FDC Controller : Ctrl–F1
Onboard Serial Port 1 : 3F8/IRQ4
Onboard Serial Port 2 : 2F8/IRQ3
UART Mode Select : Normal
RxD, TxD Active : Hi, Lo
IR Transmission Delay : Enabled
UR2 Duplex Mode : Half
Use IR Pins : IR-Rx2Tx2
Onboard Parallel Port : 378/IRQ7
Parallel Port Mode : SPP
EPP Mode Select : EPP1.7
ECP Mode Use DMA : 3
PWRON After PWR-Fail : Off

Power Management Setup

The Power Management Setup allows you to save energy of your system effectively.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Power Management Setup

		ITEM HELP
ACPI Function	Enabled	Menu Level
Power Management	User Define	
Video Off Method	V/H SYNC+Blank	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
Modem Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWR-BTTN	Instant-Off	
CPU Thermal-Throttling	50.0%	
Wake-Up by PCI card	Disabled	
Power On by Ring	Disabled	
Resume by Alarm	Disabled	
Date (of Month) Alarm	0	
Time (hh:mm:ss) Alarm	0 : 0 : 0	
** Reload Global Timer Events **		
Primary IDE 0	Enabled	
Primary IDE 1	Enabled	
Secondary IDE 0	Enabled	
Secondary IDE 1	Enabled	
FDD, COM, LPT Port	Enabled	
PCI PIRQ[A-D] #	Enabled	

ACPI Function

Use this option to enable or disable the ACPI function

Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management.
User Define	Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min. (Default)

Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + Blank	Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS	Allows the BIOS to control the video display card if it supports the DPMS feature.
Blank Screen	This option only writes blanks to the video buffer.

Video Off In Suspend

When enabled, the video is off in suspend mode. The default setting is ***Yes***.

Suspend Type

The default setting for the Suspend Type field is ***Stop Grant***.

Modem Use IRQ

This field sets the IRQ used by the Modem. By default, the setting is ***3***.

Suspend Mode

When enabled, and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down

When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds. The default value is ***Instant Off***.

CPU Thermal Throttling

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

Wake Up by PCI Card
This field allows the system to wake up from a signal received from a PCI card such as a LAN card.

Power On by Ring
This field enables or disables the power on of the system through the modem connected to the serial port or LAN.

Resume by Alarm
This field enables or disables the resumption of the system operation. When enabled, the user is allowed to set the *Date* and *Time*.

Reload Global Timer Events
The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events which can prevent the system from entering a power saving mode or can awaken the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

PNP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
PnP/PCI Configurations

Reset Configuration Data	Disabled	ITEM HELP
		Menu Level
Resources Controlled By	Auto (ESCD)	
IRQ Resources	Press Enter	Default is Disabled.
DMA Resources	Press Enter	Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
PCI/VGA Palette Snoop	Disabled	

PNP OS Installed

Enable the PNP OS Install option if it is supported by the operating system installed. The default value is ***No***.

Resources Controlled by

This PnP BIOS configures all of the boot and compatible devices with the use of a use a PnP operating system such as Windows 95.

IRQ / DMA Resources

These fields allow you to configure the IRQ / DMA Resources.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
PC Health Status

		ITEM HELP
CPU Warning Temperature	Disabled	
System Temp.		
CPU Temp.		
CPU FAN Speed (FAN4)		
Sys. FAN Speed (FAN1)		
Aux. FAN Speed (FAN2)		
Vcore(V)		
+1.8V		
+3.3V		
+5V		
+12V		
-12V		
- 5V		
VBAT(V)		
5VSB(V)		
Shutdown Temperature	Disabled	
CPU Fan Failure Warning	Enabled	
Sys. Fan Failure Warning	Disabled	
Aux. Fan Failure Warning	Disabled	

CPU Warning Temperature

This field sets the temperature threshold that when reached, the system would give an audible warning.

Temperatures/Fan Speeds/Voltages

These fields are the parameters of the hardware monitoring function feature of the Server Motherboard. The values are read-only values as monitored by the system and show the PC health status.

Fan Failure Warning

The BIOS allows the system to sound a warning when the CPU fan, system fan or/and auxiliary fan fails to function normally through these options.

Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Frequency/Voltage Control

CPU Clock Ratio	8X	ITEM HELP
Auto Detect DIMM/PCI Clk	Disabled	Menu Level
Spread Spectrum	Disabled	

CPU Clock Ratio

By default, the CPU Clock Ratio, is set to 8X.

Auto Detect DIMM/PCI Clk

This field enables or disables the auto detection of the DIMM/PCI clock. The default setting is ***Disabled***.

Spread Spectrum

This field sets the value of the spread spectrum. The default setting is ***Disabled***. This field is for CE testing use only.

Load Fail-Safe Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Set Supervisor/User Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type “Y”, you will quit the setup utility and save all changes into the CMOS memory. If you type “N”, you will return to Setup utility.

Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.

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Drivers Installation

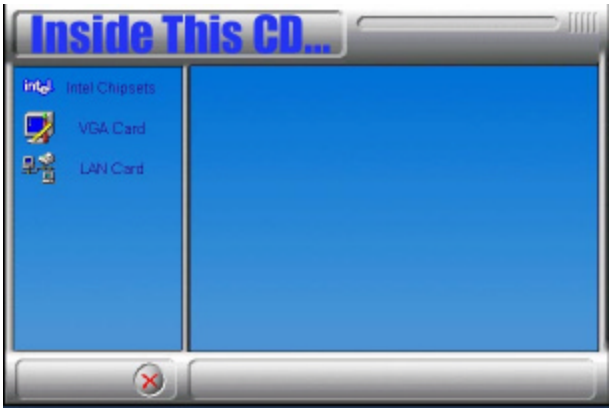
This section describes the installation procedures for software and drivers under the Windows 98, Windows NT 4.0 and Windows 2000. The software and drivers are included in the package. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

Intel E7501 Chipset Drivers Installation 44
VGA Driver Installation 45
Ethernet Drivers 47

Intel® E7501 Chipset Drivers Installation

Follow the steps below to install the INF files in Windows 2000/XP. This installation must be done after the OS installation and before the VGA and LAN drivers installation.

1. Insert the CD that comes with AFW-3000. On the initial screen, click Intel Chipsets on the left side and the screen below would appear.

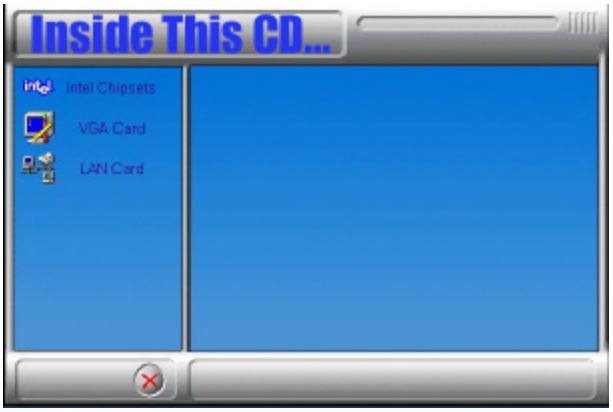


2. Click Intel(R) E7500/E7501 Chipset Family Drivers. Follow the instructions accordingly to finish the chipset driver installation.

VGA Driver Installation

Follow the steps below to install the SMI VGA drivers in Windows 2000/XP/NT.

1. Insert the CD that comes with AFW-3000. On the initial screen, click VGA Card on the left side and the screen below would appear.

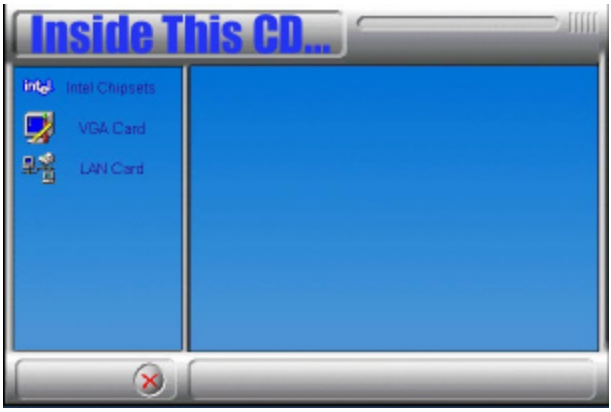


2. Click SMI721/722 VGA Driver. Follow the instructions accordingly to finish the VGA driver installation.

Ethernet Drivers

Follow the steps below to install the Ethernet/LAN drivers in Windows 2000/XP.

1. Insert the CD that comes with AFW-3000. On the initial screen, click LAN Card on the left side and the screen below would appear.



2. Click Intel(R) PRO LAN Drivers. Follow the instructions accordingly to finish the Ethernet driver installation.